Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1 to 20 (Canceled).

21. (Previously Presented) A method of assessing the effectiveness of a neurological or psychiatric treatment of a membrane fluidity-related disorder in a mammalian subject, the method comprising:

[calculating a first value of a relaxation parameter for a selected region of the brain in a magnetic resonance imaging (MRI) procedure;]

administering to the subject a neurological or psychiatric treatment to treat the disorder;

calculating a first value of T2 for a selected region of the brain in a magnetic resonance imaging (MRI) procedure;

administering to the subject a challenge to alter a physical or chemical property of cell membranes in the brain of the subject, wherein the challenge is an omega-3 fatty acid, S-adenosylmethionine, a statin, or a cytidine compound;

calculating a second value of [a relaxation parameter] T2 for the selected region of the brain in an MRI procedure; and

detecting any [difference] decrease from [between] the first value of [the relaxation parameter] T2 to [and] the second value of [the relaxation parameter] T2, wherein [a difference] the magnitude of the decrease indicates [that] the effectiveness of the treatment [has an effect] on the subject.

22. (Original) The method of claim 21, wherein the subject is a human patient.

23. (Original) The method of claim 21, wherein the subject is an animal.

24. (Canceled)

25. (Previously Presented) A method of assessing the effectiveness of a neurological or psychiatric treatment of a membrane fluidity-related disorder in a subject, the method comprising:

acquiring a first, pre-treatment T2 [proton relaxation] measurement for a selected region of the brain in a magnetic resonance imaging (MRI) procedure;

administering to the subject a pre-treatment challenge to alter [that alters] a physical or chemical property of cell membranes in the brain of the subject, wherein the pre-treatment challenge is an omega-3 fatty acid, S-adenosylmethionine, a statin, or a cytidine compound;

acquiring a second pre-treatment T2 [proton relaxation] measurement for the selected region of the brain in an MRI procedure;

detecting any [difference] decrease in T2 [between] from the first pre-treatment T2 [proton relaxation] measurement [and] to the second pre-treatment T2 [proton relaxation] measurement, thereby obtaining a pre-treatment challenge result, wherein a decrease in T2 indicates a sensitivity of the cell membranes in the brain of the subject to change by the pre-treatment challenge;

administering a neurological or psychiatric treatment to the subject to treat the disorder;

acquiring a first, post-treatment T2 [proton relaxation] measurement for a selected region of the brain in an MRI procedure;

administering to the subject a post-treatment challenge to alter [that alters] a physical or chemical property of cell membranes in the brain of the subject, wherein the post-treatment challenge is an omega-3 fatty acid, S-adenosylmethionine, a statin, or a cytidine compound;

acquiring a second post-treatment T2 [proton relaxation] measurement for the selected region of the brain in an MRI procedure;

detecting any [difference] decrease in T2 between the first post-treatment T2 [proton relaxation] measurement and the second post-treatment T2 [proton relaxation] measurement, thereby obtaining a post-treatment challenge result, wherein a decrease in T2 indicates a sensitivity of the cell membranes in the brain of the subject to change by the post-treatment challenge; and

comparing the pre-treatment challenge result with the post-treatment challenge result, wherein a [difference] decrease in magnitude from [between] the pre-treatment challenge result to [and] the post-treatment challenge result indicates that the treatment has an effect on membrane fluidity in the subject.

26. (Canceled)

27. (Canceled)

28. (Previously Presented) The method of claim 21, wherein the disorder is selected from the group consisting of bipolar disorder, alcoholism, Alzheimer's disease, major depression, and schizophrenia.

29. (Previously Presented) The method of claim 21, wherein the disorder is bipolar disorder.

30. (Previously Presented) The method of claims 21, wherein the disorder is Alzheimer's disease.

31. (Canceled)

32. (Amended) The method of claim 21, wherein the MRI procedure comprises using incrementally increased or decreased echo times (TE) [, repetition times (TR), or inversion times (TI)].

33. (Amended) The method of claim 21, wherein the MRI procedure comprises acquiring at least [16] 2 images, using an echo planar, spin echo imaging sequence.

34. (Previously Presented) The method of claim 21, wherein the treatment is a candidate psychiatric drug.

35. (Previously Presented) The method of claim 21, wherein the treatment is a candidate neurological drug.

36. (Previously Presented) The method of claim 21, wherein the treatment is a known psychiatric drug.

37. (Previously Presented) The method of claim 21, wherein the treatment is a known neurological drug.

38. (Amended) The method of claim 25, wherein acquiring the proton relaxation measurements comprise [calcuated] calculated values of a relaxation parameter.

39. (New) The method of claim 25, wherein the subject is a human patient.

40. (New) The method of claim 25, wherein the disorder is selected from the group consisting of bipolar disorder, alcoholism, Alzheimer's disease, major depression, and schizophrenia.

41. (New) The method of claim 25, wherein the MRI procedure comprises using incrementally increased or decreased echo times (TE).